

# Joint Methodology to Assess C4ISR Architecture (JMACA)

## Joint Test and Evaluation

### Mini-Test Detailed Test Plan

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# Chapter 1: Introduction

This chapter summarizes the purpose of the Joint Methodology to Assess C4ISR Architecture (JMACA), Joint Test and Evaluation (JT&E) and introduces the Mini-Test Event. This Mini-Test is a dedicated test to exercise components of the JMACA Methodology (JM) and the distributed testbed environment prior to implementation of these elements into the follow-on JM validation and operational testing. Further, it is an integral part of the overall JMACA program strategy as described in the JMACA Program Test Plan, dated 01 October 02. This Mini-Test Detailed Test Plan serves as the blueprint for planning and executing the Mini-Test Event, collecting the necessary data, and assessing the results.

## 1.1 Background

On 13 July 2000, the Director, Strategic and Tactical Systems (D,S&TS), based on the recommendation of the JT&E Senior Advisory Council (SAC), directed the Joint C4ISR Outcome-Based Integrated Architecture Assessment (JCOBIAA) program to conduct a Joint Feasibility Study (JFS) to assess the necessity and feasibility of conducting a JT&E to address Joint C4ISR architecture problems and related issues.

In August 2001, the JCOBIAA program completed the JFS, which determined a JCOBIAA JT&E to be both necessary and feasible. In late August 2001, the JFS Director briefed the Office of Secretary of Defense (OSD) SAC on the results of the JFS and recommended that the JCOBIAA program be chartered as a JT&E. Based on the SAC recommendation, the Deputy Director, Test, Systems Engineering and Evaluation (DD,T,SE&E), under the auspices of the D,S&TS, renamed the program JMACA and subsequently chartered the JMACA JT&E on 02 October 2001.

In August 2002, the JMACA program completed a Risk Reduction Event to demonstrate the Data Mining functionality used in the JM. The Risk Reduction Event demonstrated that C4ISR architecture data to run the JM is available, assessable, and retrievable. The results of the Risk Reduction Event are displayed in Table 1-1. The table is broken into three categories (Availability, Accessibility, and Retrievability) according to the requirements of the Risk Reduction Event. The solutions used to mitigate those risks are also displayed. The Mini-Test Event will also serve in a risk reduction role. The Mini-Test will mitigate JMACA program risks related to the tools and distributed testing environment that are integral to the overall JMACA program strategy.

Category	Risk Area	Finding
<b>Availability</b>	Data Required	Organization Mission System
	Data Sources	IER, Joint Pubs, Manuals, Doctrine, TOA, STP, IT-21, IDR, NAWAS, NAVAIR
<b>Accessibility</b>	Total DB Access Requests	10
	Access Requests Approved	8
	Access Requests Denied	0
	Access Requests Pending	2 (No longer pending – Access Approved)
<b>Retrievability</b>	Time to Build Data Warehouse	3 Hours
	Total Data Sources Accessed	6
	Data Sources Reached	6
	Total Records Attempted	15,383
	Total Records Received	15,383
	Time to Retrieve DB Data	1.25 Hours
	Time to Retrieve Web Data	1.50 Hours
	Time to Retrieve Excel Data	1.25 Hours

**Table 1-1 Risk Reduction Event Results**

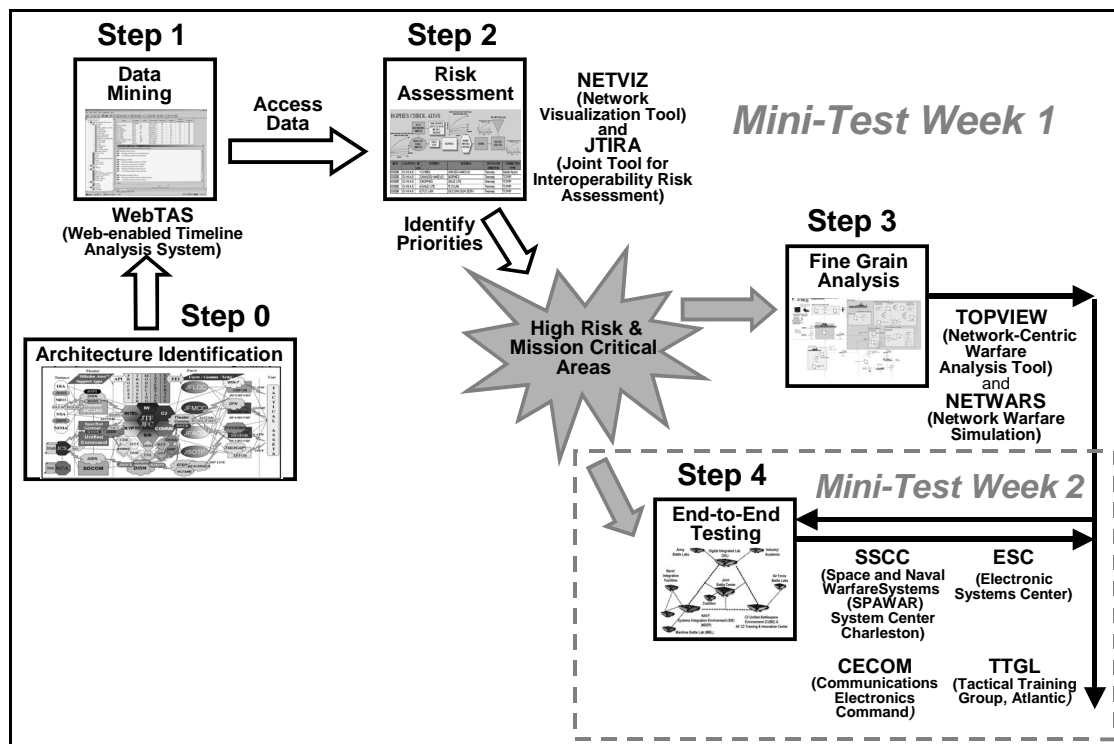
## 1.2 Purpose

The JMACA JT&E addresses two program-level issues.

- **ISSUE 1:** How well does the JM support assessment of JTF C4ISR architectures?
- **ISSUE 2:** How suitable is the JM for use by the Commander Joint Task Force (CJTF) during the C4ISR architecture development process?

The Mini-Test concept, illustrated in Figure 1-1, is designed to exercise JM Components and the distributed testbed environment, which includes examination of JM procedures, database access, JM toolset usability, testbed viability, data collection strategies, instrumentation, and data output verification.

The results of the Mini-Test will ensure that the procedures, data, toolsets, testbeds, and analysis techniques will be mature and complete enough to support the follow-on JMACA validation and operational testing. The follow-on tests will provide test data to answer these principle issues and their subordinate sub-issues, associated objectives, and measures.



**Figure 1-1 Mini-Test Concept**

The objectives of the Mini-Test are as follows:

- Test Rehearsal of Steps 0-3 of the JM toolset. The JM is exercised and evaluated using a mission-specific JTF C4ISR architecture.
- Distributed Testbed Connectivity Demonstration. Test design, configuration, and execution is performed collaboratively between multiple supporting testbed facilities.
- Functional Thread Testing Rehearsal (including: instrumentation and data collection). JT&E test data collection techniques and methods are evaluated and refined as necessary. Specific areas to be addressed include:
  - a) Manual data collection techniques
  - b) Automated collection techniques
  - c) Accuracy of collected data
  - d) Sufficiency of collected data
- Test Rehearsal of Step 4 of the JM toolset. Coordination, test planning, procedures, and execution are performed and documented in preparation for validation test planning and execution.

During post-test evaluation, Mini-Test test data and lessons learned are assessed and incorporated into planning for the JMACA Mini-Test Event and Validation Test 1 (VT-1). Mini-Test findings and conclusions are reported in an interim test report.

### 1.3 Test Location and Dates

The JMACA test team will conduct two phases of testing (JM Component and testbed environment) over a two-week period in December 2002. The JM Component testing will be conducted 02-06 December 2002 at the JMACA JT&E Tools Lab in Suffolk, VA. The test team will use the JM toolset and exercise steps of

the JM to evaluate a Joint Task Force (JTF) architecture scaled to a Combat Search and Rescue (CSAR) scenario using notional forces required to execute the mission. The testbed environment phase of the Mini-Test will be conducted 09-13 December 2002 at the following testbed facilities: Space and Naval Warfare Systems (SPAWAR) System Center Charleston (SPAWARSYSCEN Charleston), Communications Electronics Command (CECOM), Electronic Systems Center (ESC), and Tactical Training Group, Atlantic (TTGL). This second phase of the Mini-Test will demonstrate the connectivity capabilities of the selected testbed venues.

## 1.4 Mini-Test Schedule

The Mini-Test will be conducted as two independent testing events over a two week period. Each phase of testing will be preceded by a setup/rehearsal and executed over a 3 to 4 day period as shown in Figure 1-2. Daily activities for the testbed environment testing will be dependent on Satellite Communication (SATCOM) availability which could lead to a compressed testing schedule.

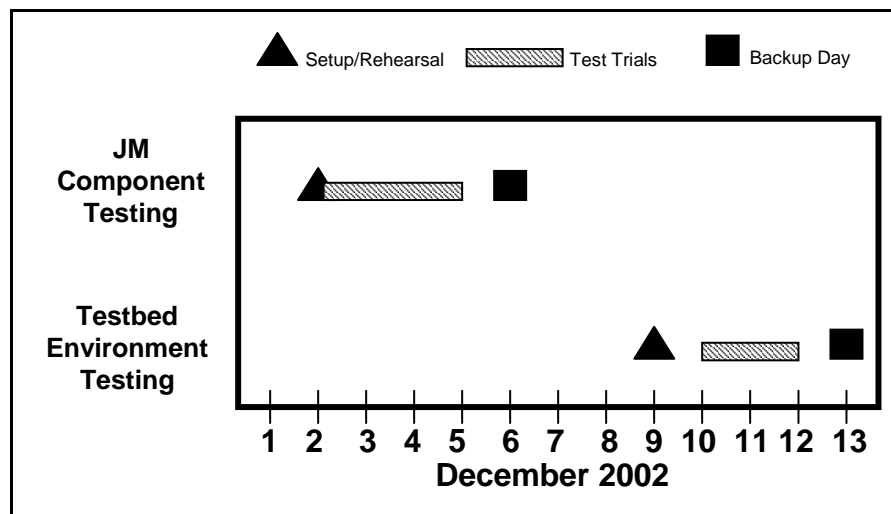


Figure 1-2 Mini-Test Schedule